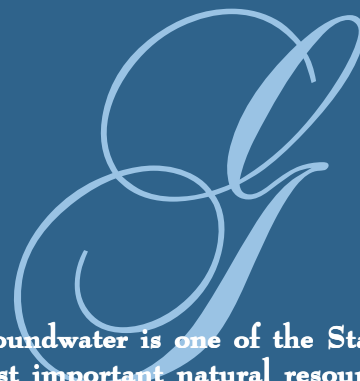




Program Update - August 2004

# Conjunctive Water Management Program



Groundwater is one of the State's most important natural resources, providing drinking water for nearly half of our citizens and providing water for agricultural and industrial users. Improved groundwater management and further development of conjunctive use, the coordinated management of surface water and groundwater resources, will be critical to increased water supply availability and reliability in the future. Other benefits will be realized as well, including improved water quality; environmental benefits in the form of increased flows and improved habitat; and reduced overdraft, subsidence, and saline intrusion in the State's groundwater basins.

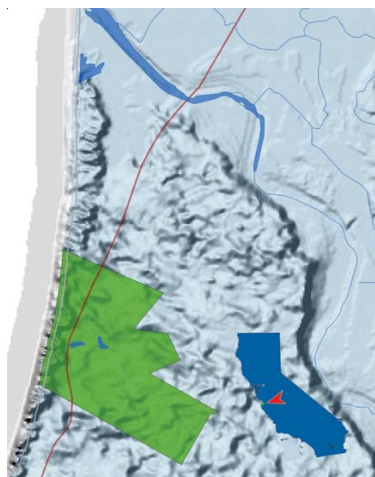
To support the efforts of local agencies in more effectively managing groundwater, DWR's Conjunctive Water Management Program is working on a number of fronts. In October 2003, DWR published Bulletin 118, *California's Groundwater*, a compendium of policy and technical information on the State's groundwater resources. Over the past four years, DWR has awarded 146 grants and loans for groundwater management and conjunctive use projects, providing \$240 million of funding. DWR is working in close partnership with local agencies and regional groups throughout the state to develop locally controlled conjunctive use programs and projects. All of these activities are contributing to meeting the objective of the CALFED Record of Decision to develop 500,000 to 1 million acre-feet of new groundwater storage.

# Local Groundwater Assistance Achievements

The Local Groundwater Management Assistance Act of 2000 (California Water Code Sections 10795 *et seq.*) was enacted to provide grants to local agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities. DWR first implemented this program in Fiscal Year (FY) 2000-2001 and has conducted four grant solicitations. All 45 grant projects from the first two cycles (FY 2000-2001 and FY 2001-2002) are completed, three of which are highlighted below. The 26 grant projects from the FY 2002-2003 funding cycle are underway. For the FY 2003-2004 funding cycle, DWR received a total of 72 grant proposals requesting \$17 million for projects having a total cost of \$26.3 million. In June 2004, DWR awarded \$6.2 million in grants to 28 local agencies.

	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004	TOTALS
Number of Proposals Evaluated	64	50	69	72	255
Number of Grant Awards	24	21	26	28	99
Total Funding Awarded (in 1000s)	\$5,000	\$4,440	\$5,785	\$6,200	\$21,425

## Marina Coast Water District



The objectives of Marina Coast Water District's (MCWD) grant-funded project were to assess sea-water intrusion into the deep aquifer and arrest or prevent, as needed, to achieve a hydrologic balance in the deep aquifer, and to meet existing and future water needs.

As part of its grant, MCWD prepared a report titled *Deep Aquifer Investigative Study*. The study identified all wells that utilize the deep aquifer, more fully characterized the deep aquifer, analyzed groundwater conditions, updated the Salinas Valley Integrated Groundwater Surface Water Model (SVIGSM), and used the refined model to estimate recharge, yield, and the connectivity between the shallow and deep aquifers.

The findings of the study include: 1) geologic, hydraulic, and geochemical data suggest that two distinct deep aquifers exist; 2) water levels in the Marina area deep aquifers have been substantially below mean sea level since the initiation of extractions; 3) the updated SVIGSM more closely matches the geology of the aquifer; and 4) increases in inland groundwater pumping have a reduced impact as groundwater level declines.

## Sierra Valley Groundwater Management District

The primary goal of the Sierra Valley Groundwater Management District (SVGMD) project was to fill data gaps that limit understanding of the Sierra Valley groundwater system.

The specific objectives were to: 1) install a series of clustered monitoring wells to provide better information on the subsurface hydrogeologic conditions in the Southwest part of the valley; 2) investigate and create new subsurface geologic cross sections to provide a more detailed conceptual understanding of major water-producing zones and confining beds in key parts of the valley; 3) install water-level recorders to fully develop an understanding of when the shallowest and deepest water levels occur and the extent of groundwater overdraft; and 4) conduct water sampling and analysis to update groundwater quality information for evaluating new developments in the valley.

SVGMD prepared a report entitled *Hydrogeology and Groundwater Monitoring in Sierra Valley*. It includes the results from monitoring-well installation and testing efforts, subsurface geologic cross-sections, water supply well sampling data, a *Sierra Valley Groundwater*





*Squaw Valley recharge area  
is one of 2001-2002 AB 303  
projects*



Update report covering 1998 to 2003, and conclusions on the findings. Three monitoring-well clusters were installed in the Sierra Valley-Calpine area that provided information on subsurface geologic conditions, water levels, and groundwater quality. They will be monitored in the future by the SVGMD. Four new subsurface geologic cross-sections were developed that indicate the extent of the major confining bed in the valley, as well as the shallow and deep water-producing zones. Water samples were collected for chemical analyses from 27 private wells in the area, which updated groundwater quality data that was more than two decades old.

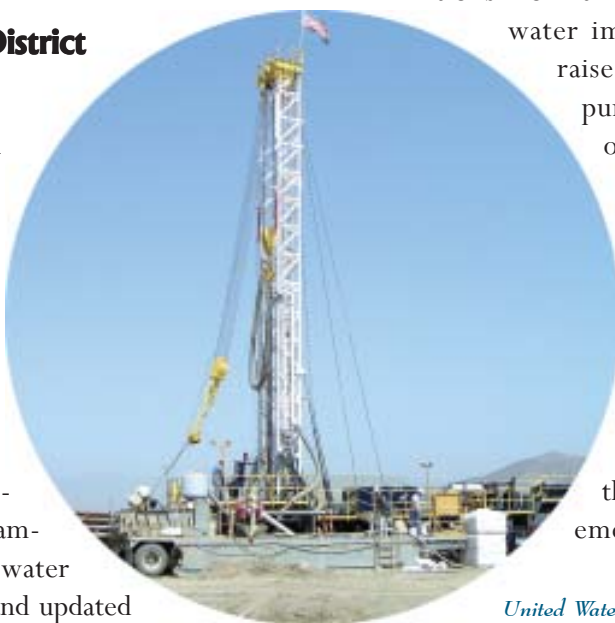
## **United Water Conservation District with the City of Oxnard**

The United Water Conservation District (UWCD) and City of Oxnard proposed to assess the inland saline intrusion and determine mitigation measures. To achieve these objectives, they 1) performed an extensive review of existing groundwater quality data within Pleasant Valley; 2) had the U.S. Geological Survey perform discrete zone groundwater quality sampling; 3) characterized irrigation water used by growers; and 4) adapted and updated

the U.S. Geological Survey Santa Clara-Calleguas Groundwater Model.

Discrete zone sampling was conducted on eight Pleasant Valley County Water District production wells, piezometer clusters, and private wells. The regional groundwater model was updated to test the effectiveness of potential mitigation measures. In addition, current irrigation waters, supplemental surface water, and reclaimed wastewater were evaluated as potential replacement water sources.

UWCD and City of Oxnard prepared the *Inland Saline Intrusion Assessment Project* report. The recommended actions from this report are: 1) increase surface water imports and decrease pumping to raise groundwater levels; 2) decrease pumping from deeper zones because of elevated chloride levels at depth; 3) shift pumping patterns to produce the lowest chloride water; 4) minimize chloride migration so that aquifers in the Pleasant Valley basin remain useable for agricultural and municipal/industrial use; and 5) conduct further analysis to interpret the geochemical, isotopic, and elemental tracer data.



*United Water Conservation District*

# 2003 Local Groundwater Management Awards

In fiscal year 2002-2003 DWR funded 26 projects for a total of approximately \$5.8 million. The table below provides a list of the awards.

Agency Name	Project Description	County	Project Cost	Grant Funding
Borrego Water District	Construct monitoring wells in the Borrego Valley Groundwater Basin and outfit wells with continuous loggers.	San Diego	\$210,020	\$171,000
Crescenta Valley Water District	Evaluate the potential of developing a recharge and conjunctive use program in the Verdugo Basin.	Los Angeles	\$185,000	\$185,000
Davis, City of	Work jointly with UC Davis to construct monitoring wells, collect data, and develop a database to better understand the deeper aquifer zone.	Yolo	\$257,268	\$225,000
Denair Community Services District	Construct two multi-completion monitoring wells to provide information that will be used to support an existing hydrogeologic model.	Stanislaus	\$200,000	\$200,000
Dunnigan Water District	Compile and analyze existing data, develop a monitoring program, perform conjunctive operations analysis, develop basin management objectives, and conduct public outreach.	Yolo	\$249,830	\$249,830
Fresno Irrigation District	Collect water level data, construct monitoring wells, install water delivery measurement devices, and evaluate the placement of recharge facilities.	Fresno	\$250,000	\$220,000
Glenn, County of	Construct two monitoring wells, convert unused agricultural wells into monitoring wells, install a subsidence monitoring system, and perform aquifer tests.	Glenn	\$250,000	\$250,000
Inland Empire Utilities Agency	Install two multi-completion monitoring wells to determine whether groundwater originating in the upper part of the Chino Basin is discharged to the Santa Ana River.	San Bernardino	\$458,100	\$250,000
Kaweah Delta Water Conservation District	Construct 19 monitoring wells and develop a basin-wide numerical groundwater model.	Tulare	\$250,000	\$230,000
Kern Water Bank Authority	Construct one multi-completion monitoring well, install 17 data loggers, and continue database development to map the stratigraphy of the Kern Fan.	Kern	\$250,000	\$220,000
Kings River Conservation District	Form a Basin Advisory Panel, coordinate groundwater management plans, compile data, and create a new basin-wide groundwater management plan.	Fresno	\$249,958	\$220,000
Los Osos Community Services District	Install two monitoring wells to determine extent of salt water intrusion and determine the source of recharge to the area's deep aquifer.	San Luis Obispo	\$220,000	\$220,000
Madera County Resource Management Agency	Develop a conceptual model for flow and recharge of the groundwater system using hydrologic testing, borehole geophysics, geologic mapping, and analysis of groundwater chemistry.	Madera	\$475,499	\$250,000
Marina Coast Water District	Install a multi-completion monitoring well to obtain new information about the deep aquifer.	Monterey	\$275,000	\$250,000
Merced Area Groundwater Pool Interests	Conduct a survey of all public supply wells within the Merced Groundwater Basin and install 22 monitoring wells to evaluate the influence of eastern Bear Creek on the basin.	Merced	\$250,000	\$250,000
Montara Sanitary District	Construct nine monitoring wells, install stream flow gauging equipment, build a groundwater model, and develop a groundwater management plan.	San Mateo	\$236,195	\$175,169
Pleasant Valley Water District	Establish a regular groundwater quality monitoring program including evaluating data, constructing a monitoring well, and developing basin management objectives.	Fresno	\$247,331	\$220,000
Quincy Community Services District	Assess groundwater development potential at 12 locations in American Valley and use the results for a groundwater management plan.	Plumas	\$243,932	\$243,932
Rainbow Municipal Water District	Develop a groundwater basin management plan by forming a development team, involving stakeholders, and performing basin hydrologic analysis.	San Diego	\$294,416	\$199,810
Reclamation District 2068	Construct monitoring wells to evaluate the feasibility of using groundwater to offset surface water demand.	Yolo	\$249,614	\$249,614
San Bernardino Valley Water Conservation District	Construct two monitoring wells in the San Bernardino Valley to evaluate recharge operations and groundwater levels and flow.	San Bernardino	\$230,500	\$230,000
San Jacinto Mountain Area Water Study Agency	Provide a basin-wide groundwater management plan, including monitoring wells, for long-term use of local groundwater and surface water resources.	Riverside	\$225,000	\$225,000
Santa Clara Valley Water District	Construct nine monitoring wells in Coyote and Llagas subbasins to fill data gaps in the groundwater monitoring system.	Santa Clara	\$249,320	\$249,320
South Tahoe Public Utility District	Develop a numerical groundwater model to assist in managing groundwater resources.	El Dorado	\$210,802	\$200,000
Squaw Valley Public Service District	Construct two monitoring wells and continue monitoring of surface water and groundwater characteristics to assist in verifying the basin's groundwater model.	Placer	\$248,896	\$171,000
Three Valleys Municipal Water District	Evaluate the potential to deliver untreated imported water into the San Antonio Spreading Grounds for groundwater recharge.	Los Angeles	\$249,982	\$230,000
<b>Totals</b>			<b>\$6,691,533</b>	<b>\$5,784,675</b>

# 2004 Local Groundwater Management Awards

In fiscal year 2003-2004 DWR funded 28 projects for a total of \$6.2 million. The table below provides a list of the awards.

Agency Name	Project Description	County	Project Cost	Grant Funding
Alameda County Water District	Install eight groundwater monitoring wells in four locations in the northwest region of the Niles Cone Groundwater Basin.	Alameda	\$303,018	\$249,900
Anderson-Cottonwood Irrigation District	Initiate Phase 1b of Conjunctive Management Program, which includes groundwater monitoring and evaluation of conjunctive use potential and impacts, and develop a GWMP.	Shasta	\$250,000	\$175,000
Arvin-Edison Water Storage District	Conduct a variety of activities to establish a new district-wide groundwater quality baseline and update maps.	Kern	\$250,000	\$250,000
Davis, City of	Develop a GWMP.	Yolo	\$150,000	\$110,000
Deer Creek Irrigation District	Install three groundwater monitoring wells and develop a Data Management System to improve groundwater management.	Tehama	\$249,045	\$225,000
Elsinore Valley Municipal Water District	Install one dual-completion monitoring well and three transducers.	Riverside	\$322,643	\$250,000
Folsom, City of	Perform a hydrogeologic investigation using existing information, install and develop test wells and perform aquifer testing, and monitor water levels and quality.	Sacramento	\$250,924	\$250,000
Glenn, County of	Identify tasks that are necessary components of a program to facilitate groundwater management and coordinate management of water resources within the County.	Glenn	\$250,000	\$225,000
Humboldt Bay Municipal Water District	Develop a GWMP, install four monitoring wells, perform a seismic refraction study, and develop a conceptual groundwater model of the aquifer and groundwater basin.	Humboldt	\$247,770	\$247,770
Kaweah Delta Water Conservation District	Collect and evaluate additional groundwater data to update the existing GWMP.	Tulare / Kings	\$294,640	\$185,000
Kern Water Bank Authority	Install two triple-completion monitoring wells and two data loggers to fill in a critical gap in water quality data and extend knowledge of the hydrology and geology of the area.	Kern	\$263,720	\$250,000
Lake County Flood Control & Water Conservation Dist.	Inventory, analyze, and document existing water resource conditions in the County and use the water inventory results to develop a countywide GWMP.	Lake	\$259,600	\$225,000
Lincoln, City of	Establish five new dedicated monitoring wells integrated with advanced geophysical characterization to improve the City's ability to manage groundwater.	Placer	\$393,210	\$180,713
Los Angeles County Flood Control District	Install three monitoring wells to determine the impacts of a recharge project on groundwater quality and quantity.	Los Angeles	\$253,674	\$220,000
Lower Tule River Irrigation District	Update the GWMP to include groundwater basin management objectives with monitoring and management protocols and construction of additional monitoring wells.	Tulare	\$285,660	\$221,760
Mammoth Community Water District	Install seven monitoring wells and equipment, perform hydrogeologic modeling, and complete a comprehensive GWMP.	Mono	\$268,415	\$200,000
Mojave Water Agency	Conduct image surveys, refraction seismic profiling, install two multi-completion monitoring wells, and model the feasibility of groundwater recharge and conjunctive use.	San Bernardino	\$450,000	\$250,000
Monterey County Health Department	Develop and implement a GIS database, conduct a well destruction program, and propose appropriate revisions to the County water well ordinance standards.	Monterey	\$250,000	\$210,000
Napa Sanitation District	Conduct a pilot project utilizing a small recharge basin, tensiometers, and monitoring wells to evaluate Aquifer Recharge Feasibility.	Napa	\$347,440	\$250,000
Orange Cove Irrigation District	Enhance OCID's groundwater management including development of a drought preparedness program.	Fresno / Tulare	\$250,000	\$250,000
Sacramento Groundwater Authority	Install 11 monitoring wells to enhance the Regional Monitoring Well Program.	Sacramento	\$249,857	\$249,857
Scotts Valley Water District	Update groundwater basin computer model to reflect a new understanding of geologic structure and hydrology of the basin.	Santa Cruz	\$250,000	\$225,000
Semitropic Water Storage District	Install one extensometer for monitoring subsidence.	Kern	\$244,780	\$200,000
Shasta County Water Agency	Develop and adopt a final water management strategy for the Redding groundwater basin and update the GWMP and groundwater model for the basin.	Shasta	\$283,464	\$225,000
Stevinson Water District	Establish a groundwater monitoring network of six multi-completion monitoring wells to investigate the cause and source of high TDS groundwater.	Merced	\$320,765	\$225,000
Three Valleys Municipal Water District	Examine alternative methods, benefits, and impacts of pumping groundwater when high-rising water levels result in property damage.	Los Angeles / San Bernardino	\$250,000	\$225,000
Western Canal Water District	Install three multi-completion groundwater monitoring wells in areas that are not currently monitored.	Butte / Glenn	\$250,000	\$175,000
Yolo County Flood Control & Water Conservation Dist.	Develop an Integrated Groundwater Surface Water Model for the Cache Creek project and set the framework for a countywide hydrologic model.	Yolo	\$278,547	\$250,000
<b>Totals</b>			<b>\$7,717,172</b>	<b>\$6,200,000</b>



# Proposition 13

Water Bond 2000 (Proposition 13) included funding for Groundwater Storage and Groundwater Recharge feasibility studies and construction projects. Over \$200 million in grant and loan funding was disbursed by DWR over four fiscal years (2001 to 2004) through a competitive application process.

During the three grant cycles, a total of 190 applications were reviewed by DWR staff and a total 61 grant and loan awards were made. Nine feasibility studies funded during the first grant cycle are either completed or nearing completion. Construction activities for several of the groundwater storage or recharge projects have begun. A separate, detailed Proposition 13 Groundwater Storage and Recharge program review report will be issued by DWR in early 2005.

For the FY 2003-2004 funding cycle, DWR reviewed 43 proposals and recommended funding for 15 Groundwater Storage grant projects and two Groundwater Recharge loan projects. In making those recommendations, DWR consulted with a Conjunctive Use Advisory Committee, com-

prising representatives of water interests and other stakeholders from throughout the state, on both the grant program criteria and selection of projects for funding. As the FY 2003-2004 funding cycle was the third and final round of Proposition 13 funding, competition for the available funding was intense. The grant funding requests exceeded available funding by more than three to one.

The Proposition 13 Groundwater Storage and Recharge program funding of \$200 million will support projects with a local cost share in excess of \$900 million and produce an estimated annual yield of over 300,000 acre-feet. To help meet the funding demands, DWR augmented the Proposition 13 funding with \$11 million from Proposition 50.

## North Kern Water Storage District

North Kern Water Storage District (NKWSD) has been banking water for in-District purposes for the last 50 years. Through the use of existing and new facilities, NKWSD proposed to provide banking services to other agencies.

The North Kern Water Storage District Project includes the construction of a gravity turnout from the Friant-Kern Canal, which will allow for the delivery of Central Valley Project-Friant water to the head of the Calloway Canal. The turnout connects to NKWSD's 8-1 Ditch through a short reach of open canal, a total distance of about 450 feet. The turnout consists of a reinforced concrete structure equipped with a slide gate to control the flow of water through the turnout. The turnout and connecting pipeline will allow for diversions of up to 200 cubic feet per second, which can be conveyed by NKWSD's existing conveyance facilities.

The project also includes the construction of extraction wells located adjacent to the Friant-Kern Canal to facilitate discharge into the Canal. Four wells will be completed to a depth of approximately 1,000 feet below ground surface.

The project improves neighboring water agencies' water supply reliability by banking water with the District for dry year supply via exchange. Water delivered through the new turnout will be used in-lieu of op-

erating wells by directly recharging the underlying aquifer. The estimated average annual yield of this project is 1,636 acre-feet/year. Regional benefits include overdraft reduction, optimizing use of groundwater resources, developing institutional relationships, and improved groundwater quality.



*Workers set forms, braces, and rebar during the construction of the North Kern Turnout - looking to the west from the east bank of the Friant-Kern Canal*

# Proposition 13 Awards

In fiscal year 2003-2004, the third and final grant cycle, DWR reviewed 43 applications and recommended funding for 17 applicants totaling \$97 million. The table below provides a list of the awards.

Agency Name	Project Description	County	Project Cost	Grant/Loan Funding
<b>GRANTS</b>				
Arvin-Edison Water Storage District	Expand the Sycamore Spreading Works by about 90 acres, expand the N1 Balancing Reservoir by about 30 acres, and construct four recovery/extraction wells.	Kern	\$4,000,000	\$2,000,000
Butte Water District	Develop two production wells and a monitoring program to track changes in groundwater levels due to groundwater extraction and natural recharge.	Butte/ Sutter	\$1,397,149	\$1,397,149
East Bay Municipal Utility District	Construct two injection/extraction wells for the injection of treated reservoir water into the S. East Bay Groundwater Plain. Construct monitoring wells and pipelines, subsidence monitoring network, and treatment facilities.	Alameda	\$21,650,000	\$3,273,000
Eastern Municipal Water District	Construct 15 recharge ponds and appurtenant facilities and improvements in the San Jacinto River channel.	Riverside	\$10,757,731	\$4,397,750
Fresno Irrigation District	Construct 13 new recharge basins with diversion structures and delivery pipelines, eight recovery wells, five monitoring wells, and improvements to the canals delivering water to the facility.	Fresno	\$9,230,144	\$4,615,072
Golden Hills Community Services District	Use existing facilities for increased surface water recharge and recover and convey stored water through the proposed extraction well and transmission pipeline.	Kern	\$1,481,000	\$740,500
Inland Empire Utilities Agency	Construct six wellhead treatment facilities for perchlorate, Upland Recharge Basin improvements, expand the Chino II Desalter, and Phase III recycled water conveyance facilities.	San Bernardino	\$81,701,011	\$15,000,000
Kern Delta Water District	Construct six new wells, modify two existing wells, and construct approximately 660 acres of spreading basins along the KDWD Buena Vista canal.	Kern	\$10,355,900	\$5,177,950
Kings River Conservation District	Construct two recharge basins and three extraction wells.	Fresno	\$2,974,651	\$2,737,753
Los Angeles County Department of Public Works	Rehabilitate and improve Big Tujunga Dam to capture, detain, and recharge additional storm water in the San Fernando Basin.	Los Angeles	\$19,700,000	\$5,809,250
Lower Tule River Irrigation District	Enhance surface water conveyance from the Tule River at North Canal.	Kings / Tulare	\$1,465,711	\$700,000
Pajaro Valley Water Management Agency	Construct a 22-mile pipeline, 17 supplemental wells, and a 26-mile coastal distribution system to deliver piped water to coastal properties to mitigate seawater intrusion.	Santa Cruz	\$137,000,000	\$28,636,713
Stockton East Water District	Construct a pipeline convey surface water to existing and future recharge facilities; and wells to recover water from groundwater storage.	San Joaquin	\$7,401,260	\$3,700,630
Sutter Extension Water District	Construct two groundwater production wells, a recharge program, monitoring program, and a conjunctive use education program.	Sutter	\$1,534,104	\$1,510,897
West Basin Municipal Water District	Expand and upgrade of the West Basin Water Recycling Plant to receive and treat more water for injection to the seawater barrier.	Los Angeles	\$33,918,000	\$9,000,000
<b>LOANS</b>				
Monte Vista Water District	Construct two new ASR wells; one ASR from an existing production well, and conversion of another production well for injection only. Increase recharge in Zone 1, dilute high nitrate concentrations in the eastern portion of the basin, and reduce overdraft.	San Bernardino	\$3,400,000	\$3,400,000
Semitropic Water Storage District	Construct an aqueduct turnout, a pipeline from the aqueduct to Pond-Poso Canal, a regulating reservoir, and a 420 cfs pumping plant to increase its capacity to return banked water to the California Aqueduct.	Kern	\$35,199,000	\$5,000,000
<b>TOTALS</b>			<b>\$340,566,661</b>	<b>\$97,096,664</b>

## DWR Website Links

DWR Home Page - <http://www.water.ca.gov>

Division of Planning and Local Assistance - <http://www.dpla2.water.ca.gov>

Groundwater Information Center - <http://www.groundwater.water.ca.gov/>

Conjunctive Water Management Branch - <http://www.groundwater.water.ca.gov/cwm>

Northern District - <http://www.dpla.water.ca.gov/nd/GroundWater/index.html>

Central District - <http://www.dpla.water.ca.gov/cd/groundwater/index.html>

San Joaquin District - <http://www.dpla.water.ca.gov/sjd/groundwater/index.html>

Southern District - <http://www.dpla.water.ca.gov/sd/groundwater/groundwater.html>

# Partnerships in Progress

CWMP continues to emphasize the importance of forming partnerships with local agencies and stakeholders to assist in their conjunctive management efforts. CWMP works with local agencies and stakeholders throughout the state to provide assistance for planning and developing locally controlled and managed conjunctive use projects. The projects below highlight several areas CWMP is working in partnership with the local agencies and stakeholders.

*Monitoring Well Construction Activities for Mojave Water Agency's Proposition 13 Feasibility Study Grant Project*



## Mojave Water Agency

Since March 2001, DWR has been working with the Mojave Water Agency (MWA) under a Memorandum of Understanding (MOU) for developing and implementing a conjunctive management program.

MWA has conducted two groundwater feasibility studies in the Mojave River Upper Basin using Local Groundwater Assistance (LGA) and Proposition 13 grant funds.

Additionally, with financial assistance from DWR and with LGA grant funding, MWA has completed Phases I and II of its Regional Water Management Plan (RWMP) Update. MWA is currently undertaking the third and last phase of the RWMP Update, which includes preparation of a groundwater management plan.

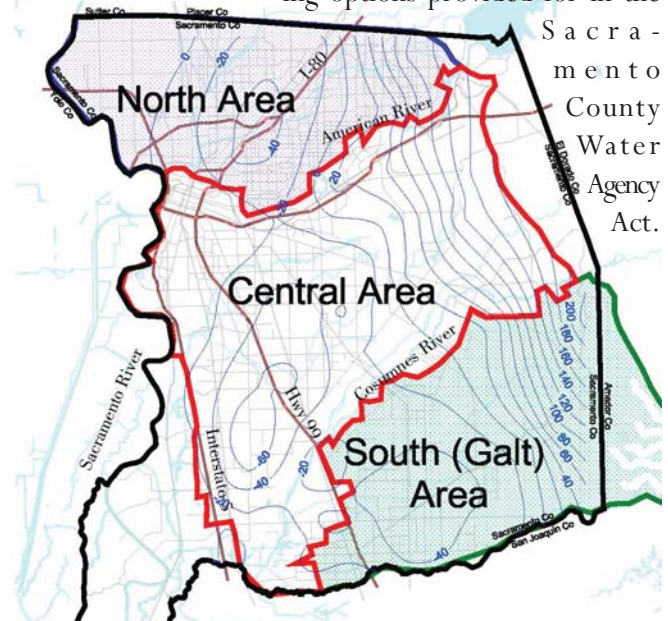
## Central Sacramento County Groundwater Forum

Stakeholders in central Sacramento County (Central Area) have come together under the sponsorship of the Sacramento Area Water Forum Successor Effort (WFSE) and DWR to create the Central Sacramento County Groundwater Forum (CSCGF). As a condition of the Water Forum Agreement, the WFSE was established to be responsible for monitoring and reporting on the implementation of that Agreement. The WFSE is also responsible for convening and facilitating negotiations to establish a groundwater management program in the Central Area.

In 2000, on behalf of the WFSE, the Sacramento City-County Office of Water Planning entered into an MOU with DWR to support discussions among stakeholders to develop a groundwater management plan for the Central Area. A stakeholder assessment was prepared after interviews with 100 individuals. Six interest groups were identified to participate in designing the CSCGF collaborative process.

CSCGF is developing recommendations to protect the health and viability of the central Sacramento County groundwater basin. The recommendations will be forwarded to the WFSE for review, approval, and implementation by the appropriate entities.

At present, stakeholders are involved in negotiation of groundwater management governance in the Central Area. Several options have been reviewed; and two general approaches are under consideration for a groundwater management structure—either a joint powers authority or existing options provided for in the





## Upper Kings River Basin

Since 2001, the Kings River Conservation District, along with the Alta, Consolidated, and Fresno Irrigation Districts have worked with DWR to pursue conjunctive management of water resources in the Upper Kings River Basin. With participation from several other local jurisdictions and interest groups, the districts established a Basin Advisory Panel (BAP).

DWR has provided technical support to complete two Basin Assessment Reports and a Conjunctive Use Analysis. In addition, DWR has provided facilitation services for the BAP. With the passage of Senate Bill 1938 in 2002, requiring a basin-wide approach to establishing groundwater management objectives, the BAP is recommending initiation of a Water Forum to address the broader array of water resource issues in the region including reliability, quality, and meeting agricultural, urban, and natural resource needs.



*Drilling monitoring well for Proposition 13 McMullin feasibility study*

## Upper San Jacinto River Basin

To develop and implement conjunctive management activities in the Upper San Jacinto River Basins, DWR has been working with the Cities of Hemet and San Jacinto, Lake Hemet Municipal Water District, and Eastern Municipal Water District since June 2001.

The agencies, as well as a number of private pumpers, have established the Hemet/San Jacinto Groundwater Policy and Technical Committees as forums for addressing issues for conjunctive management of water resources in the basins. DWR has provided facilitation services and technical support to the committees.

Through the collective efforts of the agencies, EMWD has been successful in obtaining LGA and Proposition 13 grant funds to develop a Regional Water Resources Database and to conduct a groundwater recharge and recovery feasibility study.

The agencies have developed and agreed on principles for establishing a long-term management strategy for the groundwater basins. With financial support from DWR, the agencies are currently developing an Integrated Water Management Plan.

Ongoing activities for the Upper San Jacinto River Basins include 1) resolution of the water rights dispute with the Soboba band of Luiseno Indians; 2) construction of a full scale groundwater recharge and recovery project; and 3) development of a Water Management Plan. The Water Management Plan will establish the institutional, financial, and implementation plans for achieving the long-term management objectives for the groundwater basins.

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## Water Resources Association of Yolo County

Water resource stakeholders in Yolo County share an open forum known as the Yolo County Water Resources Association (WRA). The WRA provides a forum for stakeholders in the county and members of the public to discuss water resource related activities. Active WRA members include the University of California at Davis, Dunnigan Water District, the Yolo County Flood Control and Water Conservation District (YCFCWCD), and the cities of Davis, Woodland, and Winters.

DWR is currently assisting Yolo County and the WRA in developing an Integrated Regional Water Management Plan (IRWMP). The IRWMP will provide technical and legal information on the occurrence and delivery of water in Yolo County. A follow-on volume to this document will present current and possible future policies that allow for the efficient distribution, use, protection and enhancement of water resources in the county.

Several local agencies within Yolo County, including the City of Davis, the Dunnigan Water District, and the YCFCWCD have received LGA and Proposition 13 grants from DWR. DWR provides oversight and technical assistance to these grantees and encourages regional coordination of their investigative and water management efforts.

## Stony Creek Fan Conjunctive Water Management Program



DWR is working with the Glenn-Colusa Irrigation District (GCID), Orland-Artois Water District (OAWD), and Orland Unit Water Users Association (OUWUA) to conduct a feasibility study to evaluate the potential for conjunctive water management in the Stony Creek Alluvial Fan area of Glenn County below Black Butte Reservoir.

The Stony Creek Fan Integrated Groundwater and Surface Water Model (SCFIGSM) was completed and the calibration and baseline model input files developed. Information generated from efforts to characterize the groundwater aquifer system has resulted in new management options for GCID, OAWD, and OUWUA to consider. These management alternatives are being modeled using the SCFIGSM to better identify and estimate the potential for change in regional hydrologic conditions associated with each alternative. These results will be compared with the baseline set of assumptions to identify operational changes to best meet project

goals and provide the local water agencies and the region with a management tool for scoping-level analyses.

Late spring rains in 2003 produced the need for the flood space evacuation of stored water from Black Butte Reservoir (a flood control structure operated by the United States Bureau of Reclamation), which provided an opportunity to manage releases to investigate the stream-aquifer interaction between Stony Creek and the Stony Creek Alluvial Fan formation.

The agencies are beginning a test well program to develop wells in the lower Tuscan formation. Through a coordinated effort between pumping activity, surface water supply timing, and demand schedules, the agencies will develop a Groundwater Production Element of the Stony Creek Fan Partnership to meet programmatic goals of water supply protection, enhancement, and optimization.



*Stony Creek Fan Project Percolation Pond Test Pit demonstrated high percolation rates and surface-groundwater temperature gradients.*

### Drought Program for California Small Water Systems

Following a recommendation made by the Governor's Drought Advisory Planning Panel (December 2000), DWR and the California Rural Water Association (CRWA) teamed to provide education and training for small water systems and their communities to plan for a more reliable water source. Through this partnership, CRWA is developing and implementing a drought preparedness program to lessen the effects of drought on small systems. The major components of the program include developing a database, a guidebook, and a website.

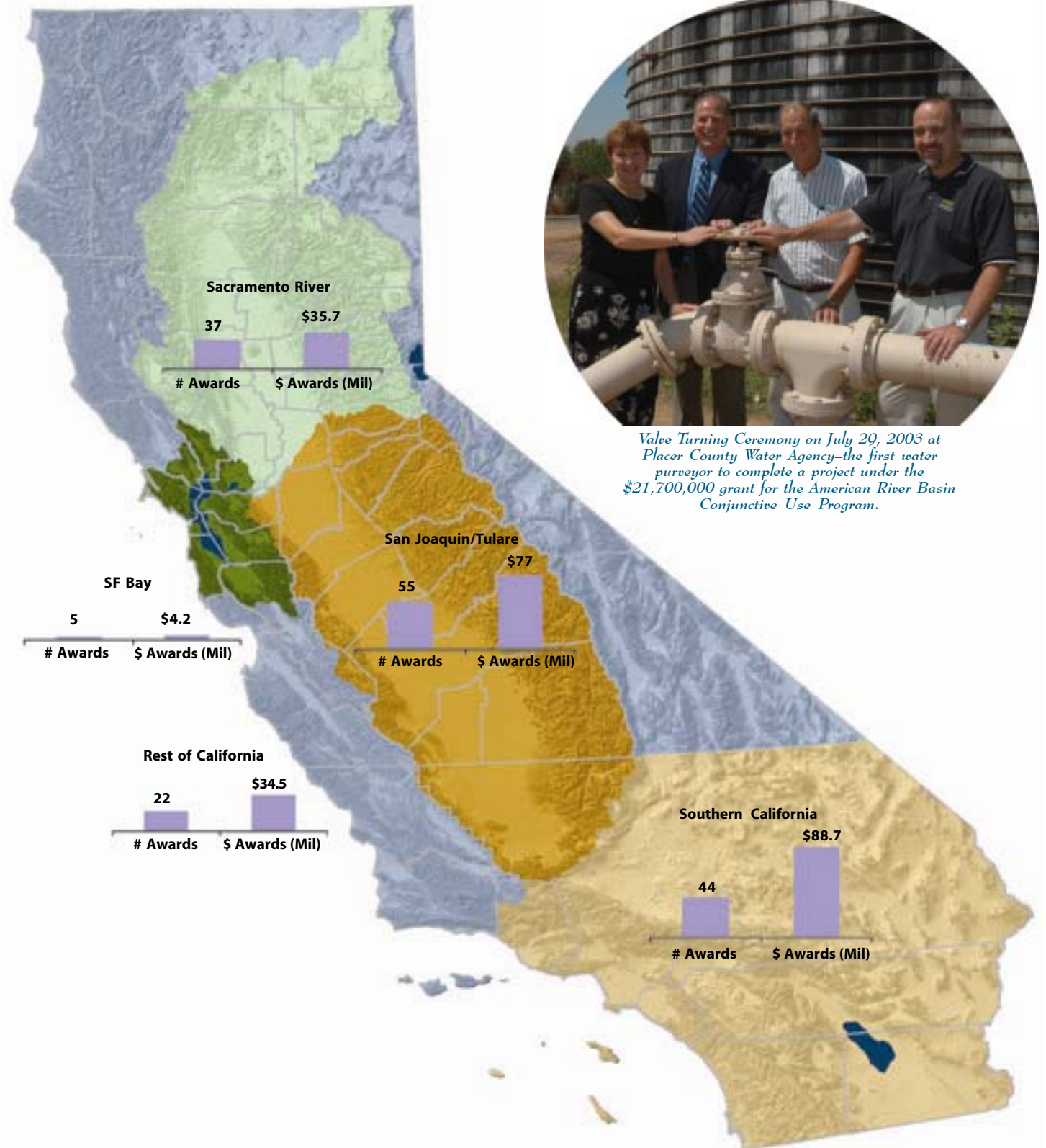
The database will include all small water systems in California. CRWA is aiding in the collection of data through a simple water usage survey. The survey and database will be the foundation of future education and technical assistance programs for small water systems in the event of a water shortage and may serve as a tool for regional planning and mutual aid among small water systems.

CRWA is developing several tools, including 1) an assessment and response plan guidebook to assist small water systems in completing and implementing emergency/disaster response plans; 2) a series of training workshops on drought preparedness as it pertains to small water systems; 3) a resource library and presentations on drought preparedness; and 4) emergency/disaster response plans for the use of small water systems.

The California Drought Preparedness website brings together all the resources that CRWA has developed under its partnership with DWR. It is available online at: <http://www.cadroughtprep.net/index.htm>

# DWR Groundwater Grants: Regional Distribution

Over the past four years, DWR has awarded grants and loans to projects throughout the State. The figure below summarizes the number of awards and the amount awarded in various regions of the State.





## Proposition 50 Snapshots

In November 2002, California voters passed Proposition 50, the Water Security, Clean Drinking Water, Coast and Beach Protection Act of 2002. DWR and the State Water Resources Control Board (SWRCB) are jointly implementing the Integrated Regional Water Management (IRWM) grant program authorized under Chapter 8 of Proposition 50 (California Water Code Section 79560 *et seq.*) The IRWM Program is a competitive grant program for projects to protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water.

The IRWM program includes funding for groundwater recharge projects and comprehensive statewide groundwater monitoring. Approximately \$380 million is available for implementation of a variety of water management elements that may include conjunctive use facilities. DWR and SWRCB held two scoping workshops in March 2004 on this program and are finalizing the program guidelines and grant application materials.

Additional information on the status of the IRWM program, including opportunities for public input and the grant program status, is available at:

<http://www.grantsloans.water.ca.gov/grants/integregio.cfm>

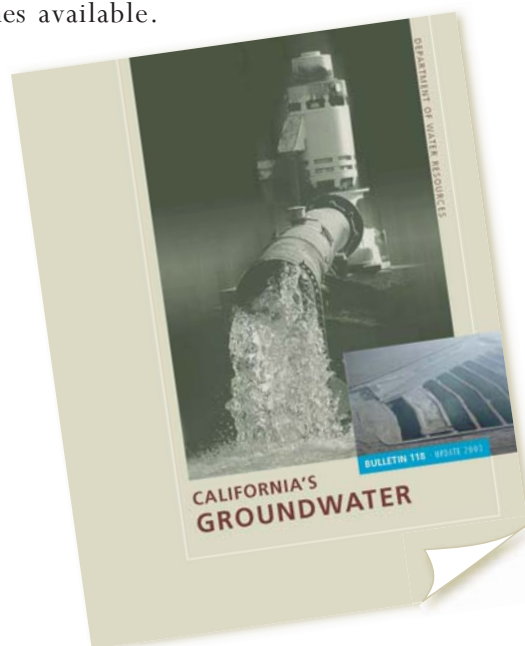
## Bulletin 118 California's Groundwater Published

The long-awaited update to *California's Groundwater*, Bulletin 118 was released to the public in early October 2003. Bulletin 118 – Update 2003 is the first comprehensive report on groundwater since 1980 when Bulletin 118-80 was published.

*California's Groundwater* includes guidance and tools that will assist local agencies in effectively managing groundwater as a sustainable part of their water supplies. *California's Groundwater* includes a description of current groundwater management efforts by local water agencies, required and recommended components of effective groundwater management plans, and a model ordinance that can be used by local governments. In addition, the bulletin describes the roles of state and federal agencies in protecting groundwater quantity and quality.

Online technical descriptions and GIS compatible maps of 515 groundwater basins and subbasins were part of the effort to publish the bulletin. The basin/subbasin descriptions include information about the geology, groundwater quantity and quality, and current groundwater management practices in the basins. This supple-

mental material will be updated as new information becomes available.



*California's Groundwater* is available online at  
<http://www.groundwater.water.ca.gov/bulletin118>

*Photo on Cover Page: Aeration of agricultural well in the Klamath Basin to remove ammonia. Groundwater Section 2001 - DWR Northern District*